

Patent Application

for

LIGHT FIXTURE FOUNDATION

of

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**Field of the Invention**

**[0001]** The present invention relates to a light fixture and a foundation for the light fixture. More specifically, the present invention relates to a light fixture foundation that includes laterally offset cableway openings for facilitating the installation of the light fixture foundation, the light fixture and its wiring.

**Background of the Invention**

**[0002]** Conventional light fixture foundations generally include a pipe shaft for holding conduit with electrical wiring to be connected to a light fixture. The pipe shaft includes an anchor at one end for anchoring the shaft in the ground and a base plate at the other end for supporting a light fixture. The light fixture is generally supported by a pole mounted to the base plate. Typical applications of conventional light fixture foundations include supports for street lighting or parking area lighting.

**[0003]** An example of a conventional light fixture and foundation is disclosed in a Hubbell Power Systems brochure entitled Lighting Foundations, 2 pages, dated February 1999, the subject matter of which is hereby incorporated by reference. The Hubbell Power Systems brochure discloses lighting foundations including pipe shafts of various lengths and diameters. Each pipe shaft has an anchor on a bottom end for threading the pipe shaft into the ground, and a base plate at the top end on which a pole mounted light fixture can be secured, typically using bolts. Electrical conduit extends into the sides of the pipe shaft via opposing coaxial openings. The conduit extends up through the shaft and through an opening in the base plate so the electrical wiring can be connected to the light fixture.

**[0004]** Since the openings of the pipe shaft for the electrical conduit disclosed in the Hubbell Power Systems Brochure are coaxial, the conduits extending through the openings interfere with each other. As a result, inserting the conduits into the pipe shaft openings and extending the conduits up through the pipe shaft becomes difficult, thus increasing the difficulty and time required to install the lighting foundation.

**[0005]** Other examples of lighting foundations includes U.S. Patent Nos. 1,189,459 to Lundin; 1,272,088 to Poole; 1,624,237 to Hanna; 1,693,760 to Lloyd; 1,777,509 to Underwood; 1,807,413 to King; 3,268,651 to Stevenson; and 3,375,620 to Phillips.

### **Summary of the Invention**

**[0006]** Accordingly, an object of the present invention is to provide a light fixture foundation designed to allow easy installation and attachment with a light fixture.

**[0007]** Another object of the present invention is to provide a light fixture foundation that eliminates interference and contact between electrical cableways extending through the foundation.

**[0008]** Yet another object of the present invention is to provide a light fixture foundation having a pipe shaft with laterally offset openings for receiving electrical cableways.

**[0009]** The foregoing objects are basically attained by a light fixture foundation having a hollow shaft with a tubular wall that extends along a central longitudinal axis. A first cableway opening extends through the tubular wall along a first axis that is substantially perpendicular to the longitudinal axis. A second cableway opening extends through the tubular wall along a second axis that is substantially perpendicular to the longitudinal axis. The second axis is laterally spaced from the first axis such that the first and second axes and the first and second openings are non-coaxial. A support member for supporting a lighting assembly is coupled to the shaft. The support member has a passageway in communication with the hollow shaft for receiving first and second cableways.

**[0010]** The foregoing objects are also attained by a light fixture including a light fixture foundation that includes a hollow shaft with a tubular wall extending along a central longitudinal axis, a first cableway opening extending through the tubular wall along a first axis substantially perpendicular to the longitudinal axis, and a second cableway opening extending through the tubular wall along a second axis substantially perpendicular to the longitudinal axis. The second axis is laterally spaced from the first axis such that the first and second axes and the first and second openings are non-coaxial. First and second cableways support electrical wiring and are received in the first and second cableway openings. A support member is coupled to the shaft. The support member has a passageway in communication with the hollow shaft and receives the first and second cableways. A lighting assembly is

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coupled to the light fixture foundation, and has a light support coupled to a the support member, and a lighting unit supported by the light support and electrically connected to the electrical wiring of the first and second cableways.

**[0011]** By fashioning the light fixture foundation of the present invention in this manner, assembly and installation of both the light fixture, light fixture foundation and its wiring are facilitated.

**[0012]** Other objects, advantages and salient features of the invention will become apparent from the following detailed description, which, taken in conjunction with annexed drawings, discloses a preferred embodiment of the present invention.

#### **Brief Description of the Drawings**

**[0013]** Referring to the drawings which form a part of this disclosure:

**[0014]** FIG. 1 is a side elevational view of the light fixture and light fixture foundation in accordance with an embodiment of the present invention, showing the light fixture foundation anchored to the ground;

**[0015]** FIG. 2 is a top plan view of the light fixture foundation illustrated in FIG. 1, with a light assembly of the light fixture removed;

**[0016]** FIG. 3 is a side elevational view in section of the light fixture foundation taken along line 3-3 of FIG. 2; and

**[0017]** FIG. 4 is a top plan view in section of the light fixture foundation taken along line 4-4 of FIG. 3.

#### **Detailed Description of the Invention**

**[0018]** Referring to FIGS. 1-4, a light fixture 10 in accordance with an embodiment of the present invention generally includes a light fixture foundation 12 anchored in the ground 14 that supports a lighting assembly 16. The design of light fixture foundation 12 provides easy installation of foundation 12 and connection to lighting assembly 16.

**[0019]** Light fixture foundation 12 generally includes a hollow pipe shaft 18 attached to a support member or base plate 20. First and second cableways 22 and 24

extend into shaft 18 for connecting electrical wiring 26, supported by first and second cableways 22 and 24, to lighting assembly 16.

**[0020]** Shaft 18 of foundation 12 includes a tubular wall 28 with inner and outer surfaces 30 and 32 and an inner bore 34. Tubular wall 28 defines a central longitudinal axis 36 and a diameter  $d_1$ , as best seen in FIG. 3. Diameter  $d_1$  is preferably about 6 to 9 inches but can be any selected diameter, as long as shaft 18 can accommodate first and second cableways 22 and 24. Tubular wall 28 includes upper and lower sections 38 and 40 between first and second axial ends 42 and 44. First axial end 42 is open, while second axial end 44 includes a conventional anchor 46 extending therefrom. The length of shaft 18 is defined between first and second ends 42 and 44, and is preferably about 5 to 10 feet. However, shaft 18 can have a length outside of this range, as long as shaft 18 is securely anchored in ground 14.

**[0021]** As best seen in FIGS. 2 and 4, first and second cableway openings 50 and 52 are disposed in tubular wall 28. Specifically, first opening 50 and second opening 52 each extend between inner and outer surfaces 30 and 32 of tubular wall 28 along first and second axes 54 and 56, respectively. Each of first and second axes 54 and 56 are perpendicular to longitudinal axis 36, and laterally spaced in a plane perpendicular to axis 36 from one another so that openings 50 and 52 offset, as best seen in FIG. 4.

**[0022]** Cableway openings 50 and 52 are located in upper section 38 of shaft 18, as seen in FIG. 3, on opposite sides of central longitudinal axis 36. Preferably, cableway openings 50 and 52 are co-planar and are located on the same vertical level with respect to shaft tubular wall 28. However, one of cableway openings 50 and 52 can be vertically higher or lower than the other. Similarly, openings 50 and 52 are preferably located in upper section 38 near lower section 40. However, openings 50 and 52 can be vertically disposed any where along upper section 38 of tubular wall 28.

**[0023]** First and second cableways or conduits 22 and 24 are received in first and second cableway openings 50 and 52, respectively. Specifically, first cableway 22 extends into first opening 50 generally along first axis 54 of opening 50. Likewise, second cableway 24 extends into second opening 52 generally along second axis 56 of

opening 52. As seen in FIGS. 2 and 4, first and second cableways 22 and 24 extend into inner bore 34. Since openings 50 and 52 are laterally offset, cableways 22 and 24 with not contact or interfere with one another when extending into openings 50 and 52 and bore 34, past axis 36. Instead, first and second cableways 22 and 24 are allowed to pass one another, defining a space  $s$  therebetween, and are generally parallel to one another. Spaced  $s$  is preferably slight, as shown in FIG. 4, but can be increased to further separate first and second cableways 22 and 24. For example, if the diameter  $d_1$  of shaft 18 is about 7 inches, then space  $s$  between cableways 22 and 24 is preferably about 0.25 inches.

**[0024]** First and second cableways 22 and 24 are preferably co-planar and non-coaxial as they extend into respective openings 50 and 52. Since openings 50 and 52 are located at the same vertical level, cableways 22 and 24 will likewise be located at the same vertical level, as seen in FIG. 3. Once cableways 22 and 24 are extended into inner bore 34 past axis 36, they each sweep or curve upwardly toward base plate 20, as best seen in FIG. 3. The sweep of each cableway 22 and 24 generally encompasses the entire diameter  $d_1$  of shaft 18.

**[0025]** Base plate 20 is attached to first or open end 42 of shaft 18 and supports lighting assembly 16. Base plate 20 is preferably square in shape and has first, second, third, and fourth substantially planar side walls 60, 62, 64 and 66 extending between substantially planar top and bottom walls 68 and 70. However, base plate 20 can be any polygonal or circular shape as long as base plate 20 can support lighting assembly 16. Base plate 20 defines a width  $w_1$  between side walls 60 and 64 and defines a length  $l_1$  between side walls 62 and 66. Bottom wall 70 of base plate 20 is fixed to shaft 18, with shaft first end 42 extending into passageway 72, by any known attachment, such as welding or the like. Extending from top wall 68 to bottom wall 70 is a centrally disposed passageway 72, as seen in FIGS. 2 and 3. Passageway 72 is aligned and coaxial with tubular wall 28 of shaft 18 allowing first and second cableways to extend upwardly through shaft open end 42 and through passageway 72. With cableways 22 and 24 extending through base plate passageway 72, electrical

wiring 26 can be electrically connected to lighting assembly 16. Bolts 74 extend from top wall 68 for engaging lighting assembly 16, as is well known in the art.

**[0026]** Notches 80 and 82 are preferably centrally disposed in side walls 62 and 66, as seen in FIG. 2, to assist in proper positioning of base plate 20 and shaft 18. By locating notches 80 and 82 on the sides of base plate 20 that correspond to the sides of shaft tubular wall 28 in which cableway openings 50 and 52 are located, notches 80 and 82 generally mark the locations of openings 50 and 52. Moreover, notches 80 and 82 can be located anywhere on base plate side walls 62 and 66, respectively, to indicate the relative circumferential locations of cableway openings 50 and 52.

**[0027]** Base plate 20 supports lighting assembly 16, as best seen in FIG. 1. Lighting assembly 16 can be any conventional pole supported light fixture. Lighting assembly 16 specifically includes a light support 76 and any standard lighting unit 78, such as a street light or a parking lot light. Bolts 74 fasten to light support 76 in a conventional manner.

#### Assembly and Installation

**[0028]** Referring to FIGS. 1-4, assembly and installation of light fixture 10 generally requires excavating a trench 160, anchoring or installing light fixture foundation 12 within trench 160, coupling first and second cableways 22 and 24 with foundation 12, and mounting lighting assembly 16 to light fixture foundation 12.

**[0029]** Trench 160 includes first and second sides 162 and 164 and a bottom 166. Trench 160 defines a depth  $d_2$  between ground 14 and bottom 166 that is approximately 1 to 3 feet and a width  $w_2$  between first and second sides 162 and 164 that is approximately 6 inches. However, trench 160 can be any selected depth and width so long as trench 160 is large enough to accommodate pipeshaft 18 and cableways 22 and 24.

**[0030]** Once trench 160 is excavated, light fixture foundation 12 is anchored therein. Specifically, anchor 46 of lower shaft section 40 of foundation 12 acts as thread allowing foundation shaft 18 to be threaded or inserted into lower ground 168 below trench bottom 166, as seen in FIGS. 1 and 3, by rotating shaft 18 as is well

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known in the art, thereby securing foundation 12 with respect to trench 160 and lower ground 168. Anchor 46 and lower shaft section 40 extend into to lower ground 168 until base plate 20 either abuts ground level 14 or is slightly spaced therefrom. The width  $w_1$  of base plate 20 is larger than width  $w_2$  of trench 160, so that base plate 20 extends across the top 170 of trench 160 beyond sides 162 and 164, as seen in FIG. 2. Notches 80 and 82 of base plate 20 assist in the proper positioning of shaft 18 with respect to trench 160 by aligning notches 80 and 82 with the longitudinal length of trench 160. In particular, shaft 18 is anchored so that side walls 62 and 66 extend across trench 160 with notches 80 and 82 indicating the relative locations of cableway openings 50 and 52.

**[0031]** Alternatively, light fixture foundation 12 can first be anchored or installed into the ground and then trench 160 excavated. Specifically, light fixture foundation 12 can be anchored within the ground by rotating pipe shaft 18 and threading shaft 18 into the ground via anchor 46. Foundation 12 can be properly positioned using notches 80 and 82 of base plate 20. Notches 80 and 82 indicate the positions of cableway openings 50 and 52 which eventually receive cableways 22 and 24. In particular, once the desired location and orientation of cableways 22 and 24 is selected, shaft 18 and base plate 20 are rotated until notches 80 and 82 align with the desired orientation of cableways 22 and 24. Trench 160 can then be excavated in accordance with notches 80 and 82, in the same manner as described above.

**[0032]** Once foundation 12 is installed and trench 160 excavated, first and second cableways 22 and 24 can then be easily inserted into openings 50 and 52 with cables 22 and 24 being on opposing sides of shaft 18 and laterally offset from one another.

**[0033]** Once inserted through openings 50 and 52, respectively, each cableway 22 and 24 sweeps upwardly through shaft inner bore 34 and through base plate passageway 72, as seen in FIG. 3, so that electrically wiring 26 can be electrically connected to lighting unit 78 of lighting assembly 16. Since openings 50 and 52 are laterally offset from one another, cableways 22 and 24 will not interfere with each other when being inserted into shaft inner bore 34. Additionally, this allows each

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**[0034]** First and second cableways 22 and 24 terminate above top wall 68 of base plate 20, as seen in FIG. 3. Electrical wiring 26 extends from first and second cableways 22 and 24, through light support 76, and is connected to light unit 78, thereby providing power to light unit 78. Lighting assembly 16 is then mounted on and secured to base plate 20 via bolts 74 in a conventional manner.

**[0035]** While a particular embodiment has been chosen to illustrate the invention, it will be understood by those skilled in the art that various changes and modifications can be made therein without departing from the scope of the invention as defined in the appended claims.